Paper No. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DAVID JOHN RUSSELL,
GERALD WALTER JONES,
HEIKE MARCELLO and
VOYA RISTA MARKOVICH

Appeal No. 2001-2255
Application 09/027,856

ON BRIEF

Before JERRY SMITH, BLANKENSHIP, and SAADAT Administrative Patent Judges.

JERRY SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's rejection of claims 12-20. Claims 1-11 stand withdrawn from consideration by the examiner as being directed to a non-elected invention. An amendment after final rejection was filed on May 30, 2000 and was entered by the examiner.

The disclosed invention pertains to a structure which results from a method for electrolessly plating of metal, particularly gold and copper, on substrates such as circuitized substrates. A particular feature of the invention is the composition of the cured, photoimaged, permanent plating resist.

Representative claim 12 is reproduced as follows:

12. A circuitized structure comprising:

a. a circuitized substrate;

b. a first layer of metal features disposed on the substrate;

c. a cured, photoimaged, permanent plating resist having photoimaged apertures disposed therein, said permanent plating resist disposed on the substrate,

wherein the permanent plating resist comprises an epoxy resin system comprising:

i. from about 10 to 80% of phenoxy polyol resin which is the condensation product of epichlorohydrin and bisphenol A, having a molecular weight of from about 40,000 to 130,000;

ii. from about 20 to 90% of an epoxidized multifunctional bisphenol A formaldehyde novolac resin having a molecular weight of from about 4,000 to 10,000;

iii. from 0 to 50% of a diglycidyl ether of bisphenol A having a molecular weight of from 600 to 2,500; and

iv. less than 15% of a cationic photoinitiator; and less than about 8% solvent;

f. electrolessly plated gold, disposed on portions of the metal features, and said gold disposed in the apertures;

g. circuitry disposed on, and adherent to the permanent plating resist, the circuitry on the permanent plating resist being electrically connected to the circuitry disposed on the substrate; and

h. electrical components disposed atop the permanent plating resist and in electrical contact with the electrolessly plated gold features.

The examiner relies on the following references:

Burr	4,097,684	June 27, 1978
Day et al. (Day)	5,026,624	June 25, 1991

Claims 12-20 stand rejected under 35 U.S.C. § 103. As evidence of obviousness the examiner offers Burr and Day.

Rather than repeat the arguments of appellants or the examiner, we make reference to the briefs and the answer for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejection advanced by the examiner and the evidence of obviousness relied upon by the examiner as support for the rejection. We have, likewise, reviewed and taken into consideration, in reaching our decision, the appellants' arguments set forth in the briefs along with the examiner's rationale in support of the rejection and arguments in rebuttal set forth in the examiner's answer.

It is our view, after consideration of the record before us, that the evidence relied upon and the level of skill in the particular art would not have suggested to one of ordinary skill in the art the obviousness of the invention as set forth in claims 12-20. Accordingly, we reverse.

Appellants have indicated that for purposes of this appeal the claims will all stand or fall together as a single group [brief, page 3]. Consistent with this indication appellants have made no separate arguments with respect to any of the claims on appeal. Accordingly, all the claims before us will stand or fall together. Note In re King, 801 F.2d 1324, 1325, 231 USPQ 136, 137 (Fed. Cir. 1986); In re Sernaker, 702 F.2d 989, 991, 217 USPQ 1, 3 (Fed. Cir. 1983). Therefore, we will consider the rejection against independent claim 12 as representative of all the claims on appeal.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in

the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. See Id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976). Only those arguments

actually made by appellants have been considered in this decision. Arguments which appellants could have made but chose not to make in the brief have not been considered and are deemed to be waived by appellants [see 37 CFR § 1.192(a)].

With respect to representative claim 12, the examiner finds that Burr teaches the claimed invention except for the composition of the resist and the electrical components disposed atop the permanent plating resist. The examiner finds that it would have been obvious to the artisan to place an electrical component on the resist and connect it to the metal in the apertures because it was well known in the art. The examiner cites Day as teaching the composition of the claimed resist. The examiner finds that it would have been obvious to the artisan to use the Day composition as the resist layer of Burr because it is obvious to use known materials based on their suitability [answer, page 3].

Appellants argue, inter alia, that the composition disclosed by Day is taught for use as a solder mask, and there is no suggestion that the composition is suitable as a resist for electroless plating. Appellants assert that there is no indication in Day that the solder mask is capable of having circuitry or components formed thereon after it has been used as

a solder mask. Appellants additionally argue that there is nothing to indicate to the artisan that the solder mask composition of Day would make a suitable substitution for the unidentified resist of Burr [brief, pages 4-9].

The examiner responds that the mask of Day is used for the same purpose as the mask in Burr. The examiner also notes that the solder mask of Day is appropriate for use as an electroless plating mask because appellants have admitted this fact in their disclosure. The examiner asserts that the artisan would have known to select any suitable and known mask for use in Burr. Finally, the examiner responds that appellants have stated no reasons why the artisan would think that the resin mask of Day would not be suitable for use as an electroless plating mask [answer, pages 4-7].

Appellants respond that there is nothing in any reference cited by the examiner that would indicate that the material of Day would have the properties required for a plating resist. Appellants also respond that there is nothing in the cited references which would indicate to the artisan that he could anticipate the results obtained with a high degree of probability. Appellants also note that the examiner's position that the Day composition works as a resist mask is a fact not

suggested by Day, but is a fact which is only apparent based on appellants' own disclosure. Thus, appellants assert that there is no evidence on this record that the material disclosed by Day could be used as an electroless plating resist as claimed [reply brief, pages 1-4].

We will not sustain the examiner's rejection of claims 12-20 for essentially the reasons argued by appellants in the briefs. Specifically, we agree with appellants that the artisan would have no motivation to combine the teachings of Day with the teachings of Burr except in an improper attempt to reconstruct the claimed invention in hindsight. Burr offers absolutely no guidance as to the composition of the resist material used. Thus, there may be an unlimited number of materials that could be used in Burr. The particular material recited in the claimed invention as the permanent plating resist is shown to be a known material by Day. The disclosure of Day, however, only discloses this material being used as a solder mask, not as an electroless plating resist. The only evidence on this record that the particular composition disclosed by Day has an application as an electroless plating resist comes from appellants' own disclosure. There is no evidence that the artisan, other than appellants themselves, had knowledge that the material disclosed by Day

possessed the properties that would enable its use as an electroless plating resist. Of the potentially unlimited number of materials which might have been used in the Burr device, the examiner has provided no evidence to support the selection of the particular material disclosed by Day. Day has been cited by the examiner only in an attempt to reconstruct the invention in hindsight.

For the reasons indicated, we have not sustained the examiner's rejection of the claims on appeal. Therefore, the decision of the examiner rejecting claims 12-20 is reversed.

REVERSED

JERRY SMITH Administrative Patent Judge	)	
HOWARD B. BLANKENSHIP Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
MAHSHID D. SAADAT Administrative Patent Judge	)	

JS/dal

Driggs, Lucas, Brubaker & Hogg Co., L.P.A.
Old Village Hall
8383 Mentor Ave.
Mentor, OH 44060